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DEPARTMENT of HEALTH

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MEMO TO : North Dakota Radioactive Material Licensees

FROM : Terry L. O'Clair, P.E.
Director
Division of Air Quality

RE : U.S. NRC Regulatory Issue Summary 2007-03: Ionizing Radiation Warning - Supplementary Symbol

DATE : March 6, 2007

The North Dakota Department of Health is sending this U.S. Nuclear Regulatory Commission (NRC) regulatory issue summary (RIS) to inform licensees that on February 15, 2007, the International Organization for Standardization (ISO) released ISO Standard #21482, *Ionizing Radiation Warning - Supplementary Symbol*, which describes a new supplemental symbol to warn individuals not trained in radiation safety of the presence of a large source of ionizing radiation. The ISO supplemental symbol does not replace the standard radiation symbol (trefoil).

Neither the NRC nor the state have initiated rulemaking, nor intend to at this time, to address this matter. The information in ISO Standard #21482 and this RIS are not new NRC or state requirements; therefore, no specific action or written response is required. Use of the supplementary symbol is voluntary. Existing standards for marking and placarding have not changed.

Additional information regarding the supplementary symbol may be found at the following website:
http://www.iaea.org/NewsCenter/News/2007/radiationsymbol.html#

Questions regarding this RIS can be addressed to the state's Radiation Control Program at (701)328-5188 or to the NRC at:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF FEDERAL AND STATE MATERIALS AND
ENVIRONMENTAL MANAGEMENT PROGRAMS
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

March 1, 2007

NRC REGULATORY ISSUE SUMMARY 2007-03
IONIZING RADIATION WARNING SYMBOL

ADDRESSEES

All U.S. Nuclear Regulatory Commission (NRC) licensees and certificate holders. All Radiation Control Program Directors and State Liaison Officers.

INTENT

The NRC is issuing this regulatory issue summary (RIS) to inform addressees that on February 15, 2007, the International Organization for Standardization (ISO) released ISO Standard #21482, *Ionizing Radiation Warning - Supplementary Symbol*, which describes a new supplemental symbol to warn individuals not trained in radiation safety of the presence of a large source of ionizing radiation. The ISO supplemental symbol does not replace the standard radiation symbol (trefoil). The information in ISO Standard #21482 and this RIS are not new NRC requirements; therefore, no specific action or written response is required.

BACKGROUND

At the December 2000, *International Conference of National Regulatory Authorities with Competence in the Safety of Radiation Sources and the Security of Radioactive Materials*, participants discussed concerns about the increasing number of radiation events involving the International Atomic Energy Agency (IAEA) Category 1 and 2 sources (later expanded to Category 3 sources) that caused death or serious injury. Conference attendees concluded that the trefoil had no inherent meaning to individuals, such as children, who had not been trained in radiation safety. As a result, the conference recommended that a universal system of labeling large radioactive sources be developed, as a supplement to the trefoil, that would target any citizen, anywhere in the world with the message: "This object is dangerous and should be left alone," as well as to convey without words that one needs to "Run Away".

On September 10, 2001, the IAEA General Conference approved the development by ISO of a new standard specifying the supplementary warning symbol. In 2005, IAEA designed a number of symbols with different colors and shapes and evaluated them in a series of assessments and comparisons with over 1600 people having insufficient technical education or background, children, and different cultures in 11 different countries (including the United States) to narrow down the choice.

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In July 2006, the ISO Secretary reported that 14 countries (including the United States) approved the standard, three countries approved with comments, two countries abstained, and two countries disapproved. NRC did not represent the United States on this matter but has followed the development of the supplemental symbol. NRC has not initiated rulemaking, nor does it intend to at this time, to address this matter and there are no new requirements for licensees.

SUMMARY OF ISSUE

The new supplemental symbol is shown in Enclosure 1. As discussed in ISO Standard #21482, IAEA recommends that the supplemental symbol be used for IAEA Category 1, 2, and 3 sealed sources. The activity for Category 1, 2, and 3 sources are in Enclosure 2. This symbol would supplement the trefoil, not replace it. As suggested, the supplemental symbol should be placed in close proximity to the source preferably on the shield or near the point of potential access to the source. The intent of the symbol on the shield is to convey the message that dismantling the device is very dangerous.

Due to the small size of most sources, placing the symbol directly on the source might not be practicable. Placing the symbol on the device shielding so it can be seen prior to accessing the actual source is desirable. The supplemental symbol shall be closely associated with the device housing the source, as a warning not to dismantle the device or get any closer to the source.

ISO Standard #21482 recommends, when practical, that the supplemental symbol be located directly on the source shield and under the device covers, such that it is not visible during normal use but would be visible if anyone attempts to dismantle the device. If there is no device cover, the Standard suggests that the symbol should be located on the outside housing in a discrete location, clearly visible prior to disassembly, but not visible during normal use. The supplemental symbol should not be used on a door to a room or in public areas, or on trucks or shipping containers.

IAEA also intends to inform scrap yards, smelting operations, or places where radioactive material is not intended to be located aware of the supplementary symbol's use. IAEA also plans to hold a workshop later this year to work on implementation strategies for how best to retrofit the symbol on existing applicable sources. Some licensees that export sources to countries that require this supplemental symbol may need to use the supplemental symbol, even though NRC does not require licensees to do so.

ISO published and released this standard on February 15, 2007. IAEA and ISO both made media announcements about the publication of the new standard. IAEA has gained agreement from most source manufacturers to start using the symbol on new IAEA Category 1, 2, and 3 sources as soon as possible. There is no requirement for NRC licensees to adopt ISO Standard #21482.

BACKFIT DISCUSSION

This RIS requires no action or written response. Any action on the part of addressees in accordance with the guidance contained in this RIS is strictly voluntary and, therefore, is not a backfit under any regulatory requirement in 10 CFR. Consequently, the staff did not perform a backfit analysis.

FEDERAL REGISTER NOTIFICATION

A notice of opportunity for public comment on this RIS was not published in the *Federal Register* because this RIS is informational, and does not represent a departure from current regulatory requirements.

PAPERWORK REDUCTION ACT STATEMENT

This RIS does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501, et seq).

CONGRESSIONAL REVIEW ACT

This RIS is not a rule as designated by the Congressional Review Act (5 U.S.C. §§ 801-886) and, therefore, is not subject to the Act.

CONTACT

This RIS requires no specific action or written response. If you have any questions, please contact one of the technical contacts listed below or the appropriate regional office.

/RA/

Michael Case, Director
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Office of Nuclear Reactor Regulation

/RA/

Janet R. Schlueter, Director
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Enclosures:
1. Supplementary Warning Symbol
2. IAEA Category 1, 2, and 3 Values
3. List of Recently Issued Generic Communications

Supplementary Warning Symbol

Enclosure 1

Radionuclide	Category 1		Category 2		Category 3	
	1000 x D		10 x D		D	
	(TBq)	(Ci)[a]	(TBq)	(Ci)[a]	(TBq)	(Ci)[a]
Am-241	6.E+01	2.E+03	6.E-01	2.E+01	6.E-02	2.E+00
Am-241/Be	6.E+01	2.E+03	6.E-01	2.E+01	6.E-02	2.E+00
Cf-252	2.E+01	5.E+02	2.E-01	5.E-00	2.E-02	5.E-01
Cm-244	5.E+01	1.E+03	5.E-01	1.E+01	5.E-02	1.E+00
Co-60	3.E+01	8.E+02	3.E-01	8.E+00	3.E-02	8.E-01
Cs-137	1.E+02	3.E+03	1.E+00	3.E+01	1.E-01	3.E+00
Gd-153	1.E+03	3.E+04	1.E+01	3.E+02	1.E+00	3.E+01
Ir-192	8.E+01	2.E+03	8.E-01	2.E+01	8.E-02	2.E+00
Pm-147	4.E+04	1.E+06	4.E+02	1.E+04	4.E+01	1.E+03
Pu-238	6.E+01	2.E+03	6.E-01	2.E+01	6.E-02	2.E+00
Pu-239[b]/Be	6.E+01	2.E+03	6.E-01	2.E+01	6.E-02	2.E+00
Ra-226	4.E+01	1.E+03	4.E-01	1.E+01	4.E-02	1.E+00
Se-75	2.E+02	5.E+03	2.E+00	5.E+01	2.E-01	5.E+00
Sr-90 (Y-90)	1.E+03	3.E+04	1.E+01	3.E+02	1.E+00	3.E+01
Tm-170	2.E+04	5.E+05	2.E+02	5.E+03	2.E+01	5.E+02
Yb-169	3.E+02	8.E+03	3.E+00	8.E+01	3.E-01	8.E+00
Au-198*	2.E+02	5.E+03	2.E+00	5.E+01	2.E-01	5.E+00
Cd-109*	2.E+04	5.E+05	2.E+02	5.E+03	2.E+01	5.E+02
Co-57*	7.E+02	2.E+04	7.E+00	2.E+02	7.E-01	2.E+01
Fe-55*	8.E+05	2.E+07	8.E+03	2.E+05	8.E+02	2.E+04
Ge-68*	7.E+02	2.E+04	7.E+00	2.E+02	7.E-01	2.E+01
Ni-63*	6.E+04	2.E+06	6.E+02	2.E+04	6.E+01	2.E+03
Pd-103*	9.E+04	2.E+06	9.E+02	2.E+04	9.E+01	2.E+03
Po-210*	6.E+01	2.E+03	6.E-01	2.E+01	6.E-02	2.E+00
Ru-106 (Rh-106)*	3.E+02	8.E+03	3.E+00	8.E+01	3.E-01	8.E+00
Tl-204*	2.E+04	5.E+05	2.E+02	5.E+03	2.E+01	5.E+02

* These radionuclides are very unlikely to be used in individual radioactive sources with activity levels that would place them within Categories 1, 2 or 3 and would therefore not be subject to the paragraph relating to national registries (11) or the paragraphs relating to import and export control (23 to 26).

[a] The primary values to be used are given in TBq. Curie values are provided for practical usefulness and are rounded after conversion.

[b] Criticality and safeguard issues will need to be considered for multiples of D.

IAEA Category 1, 2, and 3 Values

Enclosure 2

Recently Issued FSME/NMSS Generic Communications

Date	GC No.	Subject	Addressees
02/02/07	IN-07-03	Reportable Medical Events Involving Patients Receiving Dosages of Sodium Iodide Iodine-131 less than the Prescribed Dosage Because of Capsules Remaining in Vials after Administration	All U.S. Nuclear Regulatory Commission (NRC) medical use licensees and NRC Master Materials Licensees. All Agreement State Radiation Control Program Directors and State Liaison Officers.
02/28/07	IN-07-03	Potential Vulnerabilities of Time-reliant Computer-based Systems Due to Change in Daylight Saving Time Dates	All U. S. Nuclear Regulatory Commission (NRC) licensees and all Agreement State Radiation Control Program Directors and State Liaison Officers.

Note: NRC generic communications may be found on the NRC public website at http://www.nrc.gov, under Electronic Reading Room/Document Collections.